

# When scientists get aid from US

JAN 23, 1984

Following is the second in a three-part series on the efforts of the Reagan Administration to place tighter controls on public access to government information and to some types of scientific communication.

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When scientists arrived in San Diego to attend a conference of the Society of Photo-Optical Instrumentation Engineers in mid-September, 1982, many of them were summoned to a room to meet with Department of Defense personnel.

The officers asked two questions: "Was your work sponsored by a DoD agency? Have you secured clearance for your papers?"

That was enough. The scientists withdrew about 150 papers from the conference.

Prof. Hajime Sakai, of UMass-Amherst's Department of Physics and Astronomy, withdrew a non-classified paper he had prepared on measuring atmospheric emissions. He said he objected but felt he had no choice because the research was done under a Defense Department contract.

Today, he is angry over the incident, calling it a government effort to censor scientific exchanges of information.

"We thought that there was no restriction in our contract on publication or presentation of the work, if it has scientific merit," he said in a telephone interview. "The reason we objected is that academic freedom is at stake."

A Pentagon official involved in the affair denied the incident was a general attack on the scientific community.

"We were just trying to get [Defense Department contractors] to live up to their obligation to clear my work before presentation," aid Dr. Stephen D. Bryen, deputy assistant secretary of defense for international trade and security policy.

But Sakai, emphasizing the nonsensitive nature of his work, is

conference, he said, he has been required to send one copy of his work to the Defense Department, which sponsors his work, so that officials there can advise on his use of words.

"It's not strictly censorship," he says. ■

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said, "but most of us know that it is, in a way, censorship. They can only advise us. But if we don't observe that advice, probably they can withhold future grants. They didn't say that explicitly, but that is the implication."

### Attempts to stop presentations

On at least nine occasions in the last three years, Defense Department officials have attempted to prevent scientists from publishing or presenting their papers at scientific conferences. They also have denied visa applications to prevent foreign scientists from attending scientific meetings. In virtually all cases, the material in question was not classified.

No one outside the Pentagon is sure how many such interventions there have been, but the American Academy for the Advancement of Science, the leading organization of US scientists, is compiling a list of them.

Concern is growing, meanwhile, that an effort to control the free exchange of scientific information in the name of national security may eventually threaten the very vitality of American science.

The cause of these unpredictable "spasms of control," as one Defense Department publication has called them, is a fear among many in the Reagan Administration that the US is "hemorrhaging technology" to the Soviet Union.

As one result, the Defense Department is underwriting a major effort by the US Customs Service to intercept the export of militarily critical technology.

It also has requested university officials to conduct covert surveillance of foreign visitors and to limit their activities.

And it has sought, through legislation, through proposed changes in the Freedom of Information Act and through expanded use of its power to classify information, to apply new controls to unclassified scientific information with potential military applications. That definition, many scientists claim, could cover almost any scientific development.

## Haphazard restrictions

While virtually all scientists concede the need for secrecy in specific areas of research that could provide direct military benefits to the Soviet Union, a growing number express concern about the recent imposition of haphazard restrictions on scientific communications by defense bureaucrats.

In November, Frank Press, president of the National Academy of Sciences, told the House Judiciary Committee: "Perhaps most disquieting from the point of view of individual US scientists is that these [interventions] and other governmental actions to control scientific communication have been largely disjointed, unpredictable and vague in specifying the scientific fields they are intended to cover. The result is that any particular scientist is quite unclear about what obligations and sanctions, if any, might apply to her or his work."

More fundamentally, a number of scientists and university presidents contend that the government has produced no evidence to support its contention that the Soviets are gaining critical military information from open scientific literature.

Dr. Paul E. Gray, Massachusetts Institute of Technology president, has met on the issue frequently with top Defense officials, including Secretary Caspar Weinberger, and said in an interview:

"Not one of the examples I've heard — or heard about — relates to the transfer of technology through the open scientific literature. All the examples are due to theft, espionage or unintentional re-export of high tech items to the USSR."

His observations are supported by the former deputy director of the CIA, Adm. Bobby Ray Inman, who believes only a small percentage of the "outflow" of technology to the Soviet Union comes from universities.

Similarly, a blue-ribbon panel convened by the National Academy of Sciences found that "In comparison with other channels of technology transfer, open scientific communications involving the research community do not present a material danger from near-term military implications." That report is commonly referred to as the Corson Report, since the panel was headed by former Cornell University President Dale Corson.

Critics also point out that virtually no classified work is done on the campuses of American universities.

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### New regulations sought

However, Bryen, the Defense official, is less sanguine.

"No one really knows how much data the Russians get from the open literature and from scientific exchanges," Bryen said of In-

man's assessment. "It's all guess-work."

Bryen represents a faction within the Pentagon that is pushing for further restrictions on the flow of scientific information. He contends that more restrictions are appropriate, given the current US-Soviet tensions. Another group, including a number of Defense employees involved in research and engineering, want a more predictable and less restrictive set of guidelines.

The groups are hammering out a new set of regulations to deal with the problems of technology transfer.

"The Corson Report minimized the damage from technical data. The Soviets operate with great precision," Bryen said in an interview, adding that the Soviets key their efforts to secure information to research developments in the US.

Bryen, who has been responsible for a number of recent Pentagon efforts to have scientific papers withdrawn, said, "We have an uncanny ability to advertise what we're doing. But many scientists are simply not willing to listen. What we need back from the scientific community is some real cooperation."

Many scientists, he feels, either refuse or are unable to understand the severity of the threat posed by the Soviets to US national security.

"Some of the scientists just aren't willing to listen to us," he complained. "Some journals make us out to be evil McCarthyites. Instead, what the scientists should be doing is suggesting creative solutions, helping us get the job done."

Pointing out that about 90 percent of defense programs are not classified, Bryen said the military's task is to decide what information

the United States most needs to protect and to decide how to carry out that protection.

One means, he said, involves tightening access to scientific literature.

He held up a copy of Defense Electronics magazine, open to an article on radiation-hardened microchips. Affixed to the magazine was a note from one of Bryen's staff members, asking why the ma-

terial in the article was not classified.

"The problem is that no one is deciding whether it's right or wrong to publish material like this. Smart people ought to sit down and decide whether it's wrong," he said.

"If there's a lot of information on the street, it's easy for the Russians to get it." When asked for examples of Soviet military gains

from Western technology, however, many in the defense establishment point not to the milking of scientific literature but to government-approved sales of nonmilitary technology, which the Soviets have converted to military uses.

In a speech to the Armed Forces Communications and Electronics Assn., for instance, Navy Adm. E.A. Burkhalter Jr., director of the intelligence community staff, cited:

- The use of Kama Trucks, built with American and European production machinery, in the Soviet invasion of Afghanistan.

- The use in Soviet ICBMs of gyroscopes, accelerometers and bearings manufactured in the US.

- The use of two floating dry docks, built in the West for Soviet civilian use, to repair Soviet aircraft carriers, nuclear submarines and other warships.

Members of the scientific community point out that Soviet acquisition of such material — much of it illegal — has nothing to do with the publication of scientific literature.

### The work done at universities

C. Peter Magrath, president of the University of Minnesota, argues that most scientific work done at universities has no immediate applications.

Magrath's view is supported by Dr. F. Karl Willenbrock, chairman of the Technology Transfer committee of the Institute of Electrical and Electronics Engineers, Inc., a society with about 230,000 members worldwide, 190,000 of whom live in the US.

In a telephone interview, Willenbrock pointed out that the level of detail and specificity in most papers delivered at scientific conferences is acceptable to most high-technology companies, which "don't publish technical information which is of benefit to their competitors."

"Science and technology does its best in a free society," he added. "Some people want to shut it down and throw out all foreign students. It's a 'Fortress America' concept

but it is based on serious misapprehensions. The notion that all good science and technology is done in US, for example, is ridiculous."

MIT's Gray and others contend that the greatest casualty of government-imposed secrecy could be the continued development of science within the United States.

Computer scientist Stephen H. Unger, of Columbia University, argued recently, "The free exchange of knowledge among scientists and engineers is a key factor in promoting progress. An integral part of the scientific process is the publication and dissemination of new ideas, discoveries, and experimental results. By this means, critics may detect errors or faulty reasoning, point out possible improvements or confirm the validity of what was done..."

"There is no way to block the flow of information to the Soviets without . . . slowing our own [scientific] progress more than it would slow down [theirs]."

As an example, Gray cited work done in secret on the development of high speed uranium centrifuges by the old Atomic Energy Commission.

"The work progressed very slowly while it was classified," he said. "When it was opened up somewhat to the rest of the scientific community, it turned out that a lot of others had been working on some of the problems which had been impeding the progress of the work. A lot of time and money could have been saved by having the process open."

Robert Rosenzweig, of the American Assn. of Universities, in a telephone interview, asked rhetorically: "Why do we produce science that others want to steal?"

"It must have to do with the social system of science we've developed. And that has to do with communication. To risk throwing that advantage away for illusory or short-term protection seems unwise policy."

### NEXT: Restrictions on the Freedom of Information Act